AMENDMENTS TO THE CLAIMS

Please amend Claims 1, as follows:

1. (Currently Amended) A method of attaching a biological molecule to a solid support having at least one available amino group, the method comprising:

(a) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

$L_1 - X - L_2$

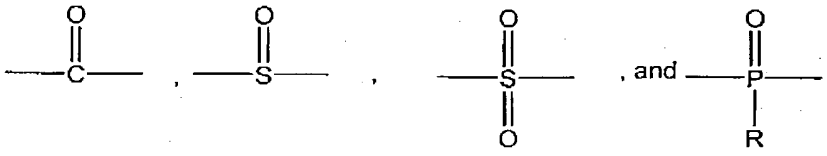
wherein L_1 and L_2 are leaving groups, and X is a moiety capable of nucleophilic substitution so that the reaction results in L_1 being displaced by the available amino group on the solid support to form an activated support;

(b) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule selected from the group consisting of nucleic acids, polypeptide chains, and carbohydrates; and

(c) reacting the biological molecule with the activated support, thereby displacing L_2 and covalently attaching the biological molecule to the solid support.

2. (Previously Presented) A method according to claim 1 wherein one or both of L_1 and L_2 are each independently selected from the group consisting of halogen, imidazole, triazole, pyrrole, pyrazole, thiazole, tetrazole, and O-Aryl-R, and wherein R is selected from the group consisting of halogen, nitro, cyano, and alkoxy moiety.

3. (Previously Presented) A method according to claim 2 wherein X is selected from the group consisting of:



wherein

R is selected from the group consisting of alkyl, aryl, and OR^1;

R^1 is selected from the group consisting of alkyl and aryl; and wherein

the alkyl and aryl groups have having no greater than about 18 carbon atoms.

4. (Previously Presented) A method according to claim 1 wherein the activating compound is 1,2,4-carbonyl di-triazole.

5. (Previously Presented) A method according to claim 1 wherein step (b) comprises depositing between about 5 to about 25 nanoliters of the biological molecule in a circular spot at one or more sites on the activated support, wherein the circular spot has a diameter of between about 10 microns to about 500 microns at one or more sites on the activated support.

6. (Previously Presented) A method according to claim 5 wherein one or both of the activating compound and the biological molecule is printed onto the solid support.

7. (Previously Presented) A method according to claim 1 wherein in one or both of step (b), and step (c), the reaction occurs in a humid chamber.

8. (Previously Presented) A method according to claim 6 wherein in one or both of step (b), and step (c), the reaction occurs in a humid chamber.

9. (Previously Presented) A method according to claim 1 wherein step (a) occurs in an organic solution.

10. (Previously Presented) A method according to claim 9 wherein step (a) occurs in the presence of a tertiary organic base.

11. (Previously Presented) A method according to claim 10 wherein step (c) occurs in an

aqueous solution.

12. (Currently Amended) A method of attaching a biological molecule having at least one reactive amino, thiol or hydroxyl group to a solid support, the method comprising:

(a) providing a solid support having at least one available amino group, the solid support selected from the group consisting of a plate and a film;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

L_1 - X- L_2

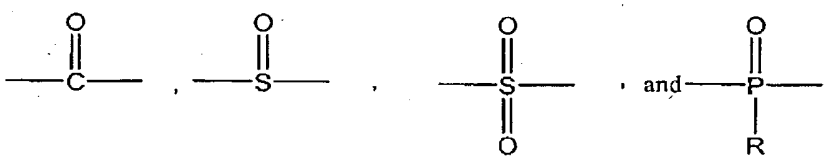
wherein L_1 and L_2 are leaving groups, and X is capable of nucleophilic substitution so that the reaction results in L_1 being displaced by the available amino group on the solid support to form an activated support; ~~and~~

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule; and

(d) ~~(c)~~ reacting the biological molecule with the activated support, thereby displacing L_2 and covalently attaching the biological molecule to the solid support.

13. (Previously Presented) A method according to claim 12 wherein one or both of L_1 and L_2 are each independently selected from the group consisting of halogen, imidazole, triazole, pyrrole pyrazole, thiazole, tetrazole, and O-Aryl-R, and wherein R is selected from the group consisting of halogen, nitro, cyano, and alkoxy moiety.

14. (Previously Presented) A method according to claim 13 wherein X is selected from the group consisting of:



wherein

R is selected from the group consisting of alkyl, aryl, and OR^1;

R^1 is selected from the group consisting of alkyl and aryl, and wherein the alkyl and aryl groups have no greater than about 18 carbon atoms.

15. (Previously Presented) A method according to claim 12 wherein the activating compound is 1,2,4-carbonyl di-triazole.

16. – 17. (Canceled)

18. (Previously Presented) A method according to claim 1 further comprising the step of washing from the solid support non-bound compounds after step (a) and before step (c).

19. (Canceled)

20. (Currently Amended) A method of attaching a biological molecule to a solid support comprising:

(a) providing a solid support having at least one available amino group, the solid support being formed from a material selected from the group consisting of cellulose, agarose, polypropylene, polystyrene, polymethacrylate, and nylon;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

$$L_1 - X - L_2$$

wherein L_1 and L_2 are leaving groups, and X is a moiety capable of nucleophilic substitution so that the reaction results in L_1 being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule selected from the group

consisting of nucleic acids, polypeptide chains, and carbohydrates; and

(d) reacting the biological molecule with the activated support, thereby displacing L_2 and covalently attaching the biological molecule to the solid support.

21. (Previously Presented) A method according to claim 20 further comprising the step of washing from the solid support non-bound compounds after step (b) and before step (d).

22. (Previously Presented) A method according to claim 20 wherein step (b) comprises depositing between about 5 to about 25 nanoliters of the biological molecule in a circular spot at one or more sites on the activated support, wherein the circular spot has a diameter of between about 10 microns to about 500 microns at one or more sites on the activated support.

23. (Previously Presented) A method according to claim 20 wherein one or both of the activating compound and the biological molecule is printed on the solid substrate.

24. (Previously Presented) A method according to claim 20 wherein in one or both of step (b) and step (d), the reaction occurs in a humid chamber.

25. (Previously Presented) A method according to claim 20 wherein the biological molecule is an oligonucleotide having at least one free amino or thiol group.

26. (Currently Amended) A method of attaching a biological molecule to a solid support comprising:

(a) providing a solid support comprised of an organic polymer having at least one available amino group;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

$$L_1 - X - L_2$$

wherein L_1 and L_2 are leaving groups, and X is a moiety capable of nucleophilic

substitution so that the reaction results in L_1 being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule; and

(d) reacting the biological molecule with the activated support, thereby displacing L_2 and covalently attaching the biological molecule to the solid support.

27. (Currently Amended) A method of attaching a biological molecule to a solid support, the method comprising:

(a) providing a solid support having at least one available amino group, the solid support being formed from a material selected from the group consisting of cellulose, agarose, polypropylene, polystyrene, polymethacrylate, and nylon;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

$$L_1 - X - L_2$$

wherein L_1 and L_2 are leaving groups, and X is capable of nucleophilic substitution so that the reaction results in L_1 being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule; and

(d) reacting the biological molecule with the activated support, thereby displacing L_2 and covalently attaching the biological molecule to the solid support.

28. (Previously Presented) A method of attaching a biological molecule to a solid support comprising:

(a) providing a solid support having at least one available amino group;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

$$L_1 - X - L_2$$

wherein L_1 and L_2 are leaving groups, and X is a moiety capable of nucleophilic substitution so that the reaction results in L_1 being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule, wherein the biological molecule is a biological macromolecule having at least one reactive amino, thiol, or hydroxyl group; and

(d) reacting the biological molecule with the activated support, thereby displacing L_2 and covalently attaching the biological molecule to the solid support.

29. (Previously Presented) A method of attaching a biological molecule to a solid support comprising:

(a) providing a solid support having at least one available amino group;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

$$L_1 - X - L_2$$

wherein L_1 and L_2 are leaving groups, and X is a moiety capable of nucleophilic substitution so that the reaction results in L_1 being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule, wherein the biological molecule is selected from the group consisting of hormones, theraputic drugs, and drugs of abuse; and

(d) reacting the biological molecule with the activated support, thereby displacing L_2 and covalently attaching the biological molecule to the solid support.

30. (New) A method of attaching a biological molecule to a solid support comprising:

(a) providing a solid support comprised of an organic polymer having at least one available amino group;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

$$L_1 - X - L_2$$

wherein L_1 and L_2 are leaving groups, each independently selected from the group

consisting of halogen, imidazole, triazole, pyrrole, pyrazole, thiazole, tetrazole, and O-Aryl-R, wherein R is selected from the group consisting of halogen, nitro, cyano, and alkoxy moiety, and X is a moiety capable of nucleophilic substitution so that the reaction results in L_1 being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a biological macromolecule selected from the group consisting of nucleic acids, polypeptide chains, and carbohydrates; and

(d) reacting the biological molecule with the activated support, thereby displacing L_2 and covalently attaching the biological molecule to the solid support.

31. (New) A method according to claim 30 wherein the activating compound is 1,2,4-carbonyl di-triazole.

32. (New) A method according to claim 30 wherein the solid support is a plate or a film.

33. (New) A method according to claim 30 wherein the solid support is an amine derivatized organic polymer selected from the group consisting of polyproplyene, polystyrene, polymethacrylate, and nylon.

34. (New) A method according to claim 30 wherein the biological molecule is an amino derivatized oligonucleotide.

35. (New) A method according to claim 30 wherein step (d) comprises depositing between about 5 to about 25 nanoliters of the biological molecule in a circular spot at one or more sites on the activated support, wherein the circular spot has a diameter of between about 10 microns to about 500 microns at one or more sites on the activated support.

36. (New) A method according to claim 30 wherein one or both of the activating compound and the biological molecule are printed onto the solid support.